SANBORN HEAD

Dewey Avenue, Slope Reconstruction

WEST RUTLAND, VT | TOWN OF WEST RUTLAND

Sanborn Head provided engineering, design, and construction phase services to the Town of West Rutland, Vermont to repair a soil slope that experienced excessive movement after a significant rainfall event and subsequently damaged an adjacent roadway.

Key Components:

- Geotechnical Engineering Services
- Slope Design
- Construction Oversight
- Sustainable Construction Materials

The Town of West Rutland assembled a project team consisting of Otter Creek Engineering and Sanborn Head to provide engineering and design services, followed by construction contract administration and construction oversight. The construction of the Dewey Avenue slope repair and the required roadway upgrades were completed using FEMA disaster relief funding.

The adoption of a conventional riprap slope repair was selected by the design team based on the results of a subsurface evaluation program, site geometry, and slope stability analysis. A contractor was selected and construction proceeded. Just before the reconstructed slope was finished, a soil tension crack was observed in the prepared roadway subgrade at the crest of slope. Construction was halted and additional subsurface soil information was gathered through test pits and a soil boring in areas that there were not accessible during the design phase. An inclinometer was also installed to evaluate slope movement versus depth within the soil mass.

The test pits and additional soil boring indicated that were several hundred yards of unsuitable fill soil beneath the center portion of the project area. An expedited redesign of the slope repair was performed as the project went into winter shutdown. Several geotechnical approaches were considered but ultimately an unloading of the top of slope and a modified toe buttress were chosen. To unload the top of slope ultra lightweight foamed glass aggregate (UL-FGA) was selected.

The redesign was implemented, construction proceeded after the winter shutdown with only a few months of construction delay, the slope was successfully built, and the roadway was reopened.

Related People

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Geotechnical Design

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